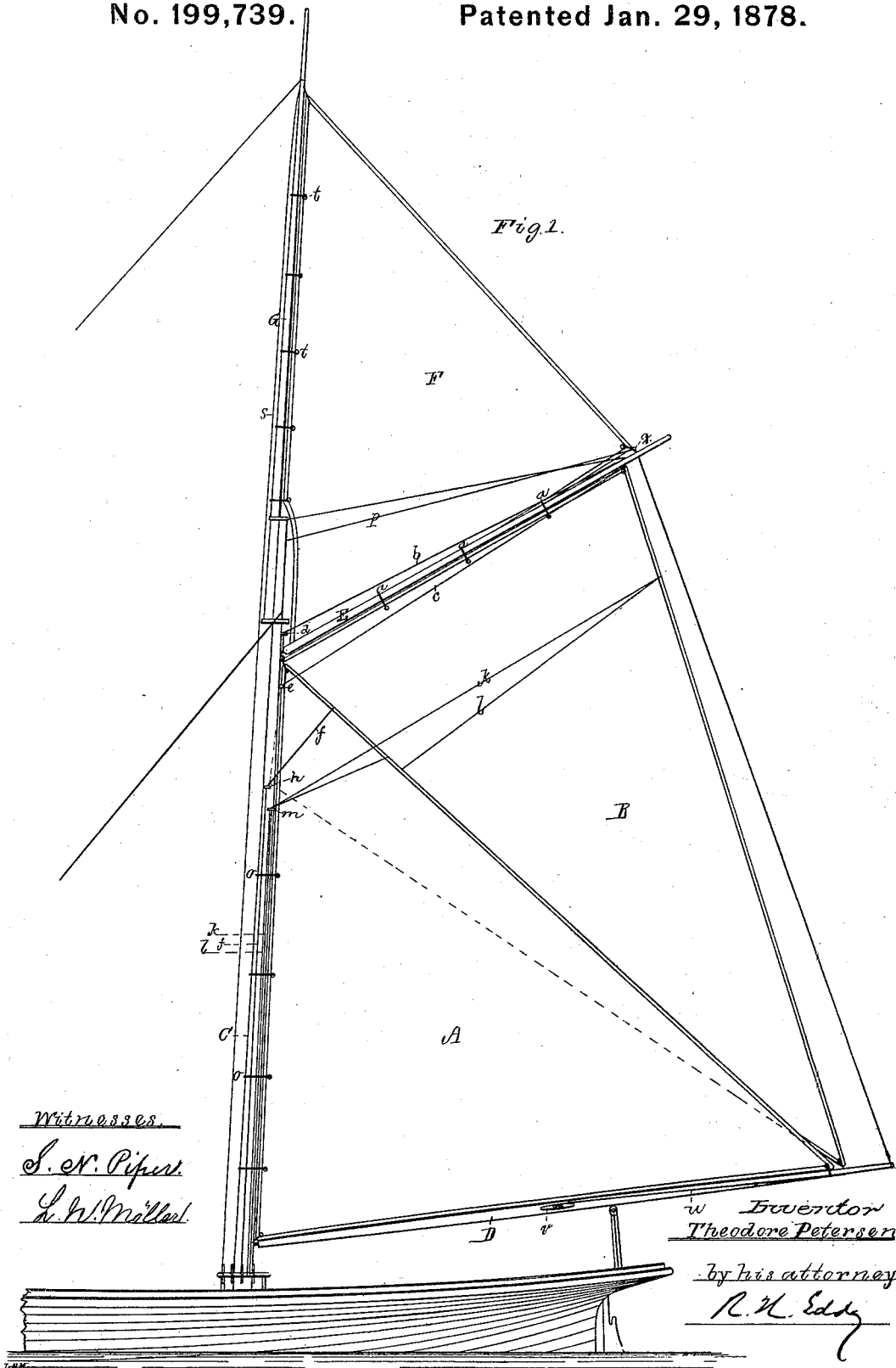


T. PETERSEN.
Reefing Fore and Aft Sails.

No. 199,739.

Patented Jan. 29, 1878.



Witnesses.

S. N. Piper

S. W. Miller

In Witness Whereof
Theodore Petersen

by his attorney

R. H. Eddy

T. PETERSEN. 2 Sheets—Sheet 2.
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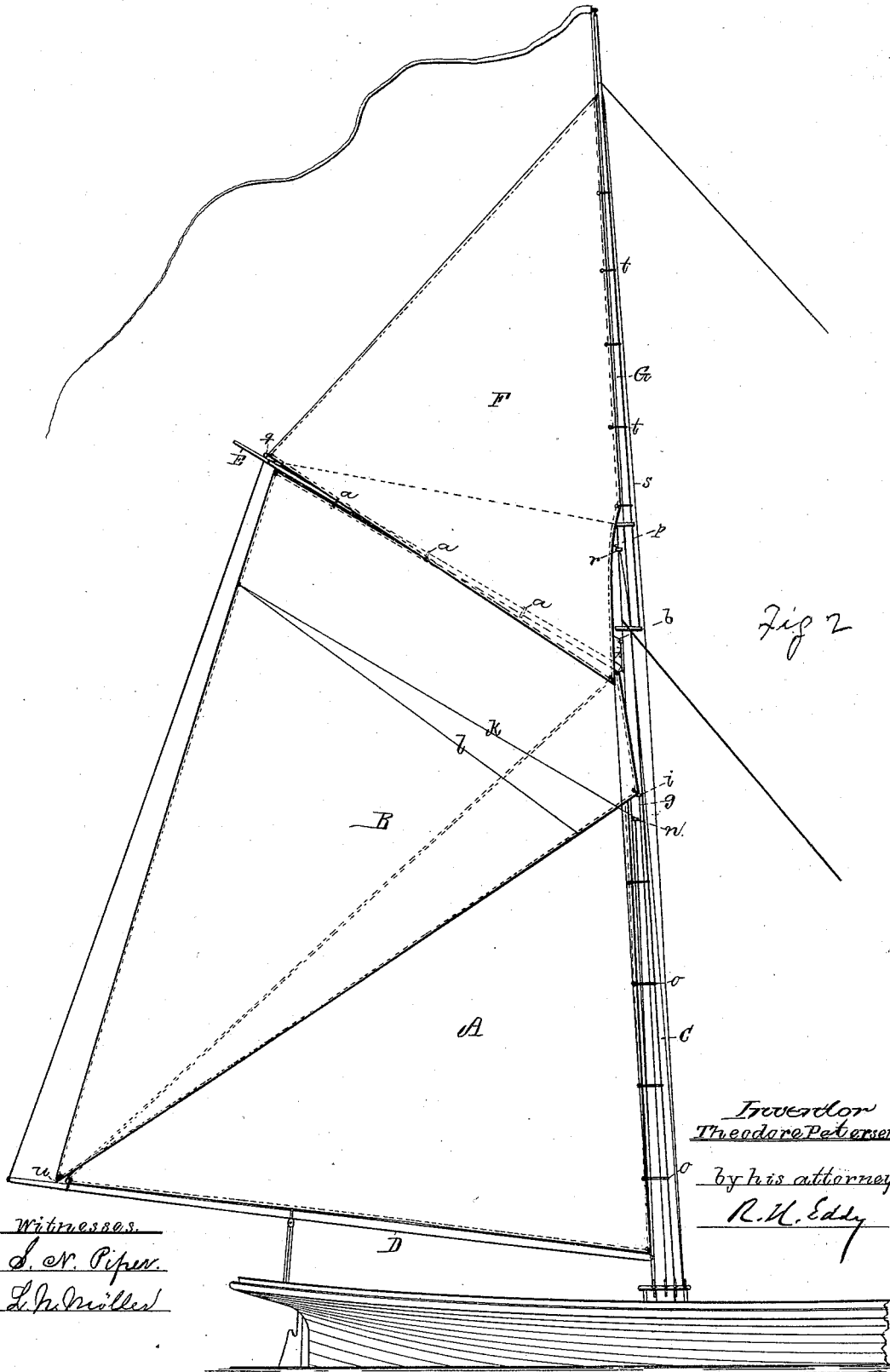


Fig 2

Inventor
Theodore Petersen

by his attorney
R. W. Eddy

Witnesses
S. M. Piper
L. H. Miller

UNITED STATES PATENT OFFICE.

THEODORE PETERSEN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN REEFING FORE-AND-AFT SAILS.

Specification forming part of Letters Patent No. **199,739**, dated January 29, 1878; application filed January 8, 1878.

To all whom it may concern:

Be it known that I, THEODORE PETERSEN, of Boston, of the county of Suffolk and State of Massachusetts, have made a new and useful invention having reference to navigable vessels and their fore-and-aft sails; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figures 1 and 2 are opposite side elevations of a mast, top-mast, boom, and gaff as provided with sails and their working appliances in accordance with my invention; the special object of which is to enable a mainsail, or other sail of like character, to be readily reefed in stormy weather; also, to dispense with any raising or lowering of the gaff in order to set or take in the sail.

With my improvement the gaff has no hoisting appliances, but remains stationary relatively to the mast, and is supported in part by a stay extending from near its peak to the head of the lower mast.

In carrying out my invention the mainsail is composed of two sails, A B, arranged with the mast C, the boom D, and gaff E, in manner as represented. The lower of these sails—viz., that marked A—is triangular in shape, the upper one being trapezoidal, or approximately so, in form, its lesser base or smallest side being extended down alongside of the mast when the sail is set. A triangular portion of the upper sail laps on the lower one. The upper edge of the upper sail is furnished with rings or hoops *a a a*, to encircle and slide on the gaff. Furthermore, the sail B has affixed to the outer corner of its head one inhauling and one outhauling line or rope, they being shown at *b c*. The line *b* extends up through the gaff, thence along the latter to and down through an eye, *d*, or a block attached to the mast; thence the rope *b* extends down to, or nearly to, the deck. The inhauling-line *c* runs along the head of the sail to and through another block or eye, *e*, projecting from the mast; thence the line goes down to, or nearly to, the deck. There is also to the foot of the sail B an outhauling-rope, *u*, which goes through the boom, and belays upon a cleat, *v*, fastened thereto. By means of these lines the said sail B may be

hauled in or out. Besides these inhauling and outhauling lines, the sail B has affixed to it, at the lower corner of its lesser base, two other lines, *f g*, one of which, *f*, passes up over the upper edge of the sail A, and thence downward through a block or an eye, *h*, projecting from the mast. The other rope, *g*, goes through another such block or eye, *i*, also extended from the mast, as shown.

By means of these ropes the lapping portion of the sail B may be readily drawn either to one side or the other of the sail A, or, in other words, to the leeward of such sail A, in whichever direction the wind may be, whether from port or starboard. There are to the sail B suitable lines *k l* for brailing it, such lines being extended through eyes *m n*, projecting from the mast.

The lower sail A, fastened at its lower edge to the boom, has hoops *o o o*, to slide on the mast, in order to enable the sail to be set or taken in, as occasion may require.

As was before mentioned, the gaff is stationary, and also serves to aid in supporting a top-sail, F, properly applied to it and the top-mast G. An outhauling-line, *p*, is fixed to the after corner of the top-sail, and goes through an eye, *q*, projecting from the gaff, such line being carried to and through an eye, *r*, at the head of the mast. From them the line runs down to, or nearly to, the deck. The top-sail has a "topping-lift," *s*, and sustaining-hoops *t t*, as represented.

From the above it will be seen that in bad weather, with my invention, it becomes an easy matter to take in the sail B, and thus to reef the mainsail, and that this can be done without any dropping of the gaff, whereby the top-sail would require first to be taken in; also, that after the sail B may have been drawn out it becomes an easy matter to cast its lapping part to either side of the sail A, or, in other words, to the leeward of the sail A, in order that the wind may act to the best advantage on such sail B, without causing it to be chafed by the sail A.

I do not claim, in combination with a mast, boom, top-sail, and mainsail, a gaff to rise and fall with the mainsail, for with my improvement the gaff is stationary, as described, and in consequence thereof important advantages

are gained, the sails applied to the gaff being handled or taken in or set without requiring the gaff to be raised or lowered, and the consequent expenditure of power and wear and tear due thereto.

What I claim as my invention is as follows:

1. The sail B, applied to the gaff, and provided with inhauling, outhauling, brailing, and lap-setting ropes, as described, in combination with, and arranged substantially as described with, the sail A, as set forth, applied to the mast and boom, as specified.

2. The combination of the stationary gaff with the mast, top-mast, and boom, and the three sails A B F, provided with operating-lines, and arranged and applied substantially as set forth.

THEODORE PETERSEN.

Witnesses:

R. H. EDDY,
JOHN R. SNOW.